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May 16, 2007

By Federal Express and Email

Elin Miller
Regional Administrator
Region 10
United States Environmental Protection Agency
1200 Sixth Avenue
Seattle, WA 98101

Miller.Elin@epa.gov

Re: Petition for Assessment of Hazards Associated with the Release of Hazardous Substances at the Georgetown Mine Pursuant to Section 105(d) of the Comprehensive Emergency Response, Compensation and Liability Act

Dear Regional Administrator Miller:

This petition is submitted to the U.S. Environmental Protection Agency (EPA) on behalf of members of the Greater Yellowstone Coalition, a nonprofit organization dedicated to protecting the lands, waters and wildlife of the Greater Yellowstone Ecosystem.

1. Petitioner/Location

Pursuant to Section 105(d) of CERCLA, 42 U.S.C. §9605(d), the Greater Yellowstone Coalition, Petitioner herein, respectfully requests that the EPA Region 10 conduct a Preliminary Assessment of the hazards to public health and the environment that are associated with the release or threatened release of hazardous substances, pollutants or contaminants at the West Georgetown Mine located in Caribou County, Idaho. Appendix A provides a detailed map of the West Georgetown Mine and its mining-related features, including the location of its waste rock dumps.

2. Petitioner is affected by the release

The Greater Yellowstone Coalition (hereinafter GYC) has more than 11,500 members, and more than 300 members of GYC live in eastern Idaho, including four staff who work in the GYC Idaho office, located in Idaho Falls. GYC's members regularly use Forest Service, BLM, and state lands adjacent to the West Georgetown Mine for a variety of activities, including fishing, hiking, hunting, wildlife viewing, spiritual renewal, biological and botanical research,

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photography, and other forms of recreation. In addition, some GYC members obtain all or part of their livelihoods from public lands and waterways affected by the West Georgetown Mine.

More specifically, in 1996, GYC became an intervener in the Federal Energy Regulatory Commission's relicensing of PacifiCorp's Bear River hydroelectric generating facilities on the Bear River, both up and downstream of the confluence of Georgetown Canyon Creek and the Bear River. Georgetown Canyon Creek is directly and significantly impacted by selenium contamination from the West Georgetown Mine.

The Bear River is one of the last strongholds for native Bonneville cutthroat trout within their historic range. Georgetown Canyon Creek is one of the largest potential spawning tributaries of the Bear River within the PacifiCorp's Bear River project area.

In 2002, after more than six years of negotiations, GYC, along with 13 other state, federal, and Tribal agencies, and other NGOs, signed a historic settlement agreement with PacifiCorp that requires the company to provide more than $16 million for Bonneville cutthroat trout restoration and enhancement in the Bear River and its tributaries over a 30-year period. The settlement agreement also created the Bear River Environmental Coordinating Committee (ECC). ECC members include PacifiCorp, the Shoshone-Bannock Tribes, Forest Service, National Park Service, Bureau of Land Management, US Fish & Wildlife Service, Idaho Dept. of Fish & Game, Idaho Dept. of Environmental Quality, Idaho Dept. of Parks & Recreation, GYC, Trout Unlimited, American Whitewater, and Idaho Rivers United. The selenium contamination from the West Georgetown Mine significantly and adversely affects GYC and its members by harming the rare Bear River Bonneville cutthroat trout population.

According to the 2001 Consent Order between US EPA, US Forest Service, Idaho Department of Environmental Quality (IDEQ), Bureau of Land Management and the US Fish and Wildlife Service and the phosphate mining companies, J.R. Simplot Company, Nu-West Industries, Inc., Rhodia, Inc., FMC Corporation, and P4 Production, L.L.C.:

> Elevated concentrations of selenium and other hazardous substances, pollutants and contaminants have been identified in water, soil, vegetation and wildlife associated with current or former phosphate mining operations in southeastern Idaho. The IDEQ has determined that these elevated levels of selenium, and other hazardous substances, pollutants and contaminants are a violation of the standards, rules and regulations established pursuant to Idaho Code 39-101 et seq. and 39-4401 et seq.

Pursuant to the 2001 Consent Order, an Area Wide Human Health and Environmental Risk Assessment ("AWHHERA") was completed in 2002. The AWHHERA contained very limited sampling of surface water, soil, vegetation, and fish and wildlife tissue within a 2500-square mile area that included 19 phosphate mines, including the West Georgetown Mine. Despite the extremely limited sampling effort, the results indicated a significant release of hazardous substances at the West Georgetown Mine. The AWHHERA reported the following:

(1) Soil samples from the Georgetown Canyon Dump #2 and Georgetown Canyon Dump #4 contained, respectively, 200 mg/kg[1] and 110 mg/kg[2] of selenium, far exceeding the Removal Action Level for selenium in soil of 5.2 mg/kg.[3] Soil samples from Georgetown Canyon Dump #1 and Georgetown Canyon Dump #2 contained 70 mg/kg and 67 mg/kg of cadmium[4], far exceeding the removal action level in soil of 14 mg/kg.[5]

(2) Surface water samples from the Georgetown Creek in 2001 contained 1.9 µg/L and 2 µg/L[6] of selenium, exceeding the surface water Monitoring Action Level of 1.6 µg /L for regulated surface water.[7]

In addition, in 2006, IDEQ sampled the Georgetown Creek and found that it contained 12 µg/L of selenium, exceeding Idaho Water Quality Standards and the Removal Action Level for selenium.[8] This sample indicates a significant decrease in water quality from the 2001 samples in the AWHHERA.

Thus, based upon the sampling data contained in the AWHHERA, the subsequent sampling by IDEQ, and the nature and extent of unreclaimed seleniferous waste rock dumps existing at the West Georgetown Mine, as shown in Appendix A,[9] hazardous releases of selenium have occurred and are likely to continue to occur from the West Georgetown Mine. Because of the very limited extent of sampling, it is not possible to quantify the risk to human health and the environment from these releases nor is it possible to quantify the extent of damage to surface water, groundwater, soil, vegetation nor the extent of migration of the contaminants or their bioaccumulation. The degree of contamination, however, in these limited samples indicates that the release of hazardous substances presents a substantial risk to human health and the environment, which must be further quantified in a Preliminary Assessment, as required by section 105(d) of CERCLA and the National Oil and Hazardous Substances Pollution Contingency Plan, 40 CFR §§300.1 to 300.1105.

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[1] AWHHERA, Montgomery Watson 2001 Soil Analytical Results, Table H-19.

[2] Id.

[3] Idaho Department of Environmental Quality. Area Wide Risk Management Plan: Removal Action Goals and Objectives, and Action Levels for Addressing Releases and Impacts from Historic Phosphate Mining Operations in Southeast Idaho, February 2004 at page 13.

[4] Id.

[5] Idaho Department of Environmental Quality. Area Wide Risk Management Plan: Removal Action Goals and Objectives, and Action Levels for Addressing Releases and Impacts from Historic Phosphate Mining Operations in Southeast Idaho, February 2004 at page 13.

[6] AWHHERA, Tetra Tech EM Inc., 2001 Surface Water Analytical Results and Field Data, Table H-7.

[7] Idaho Department of Environmental Quality. Area Wide Risk Management Plan: Removal Action Goals and Objectives, and Action Levels for Addressing Releases and Impacts from Historic Phosphate Mining Operations in Southeast Idaho, February 2004 at page 11.

[8] ACZ Laboratories, Inc. Analytical Report to Greg Mlandenka, IDEQ, dated June 13, 2006.

[9] Moyle, Phillip R and Helen Z Kayser, U.S. Geological Survey. Spatial Database of Mining Related Features in 2001 at Selected Phosphate Mines, Bannock, Bear Lake, Bingham, and Caribou Counties, Idaho, 2006.

3. Characteristics of the substance released

Phosphate mining has created a toxic legacy in southeastern Idaho. Selenium is a toxic mineral contained in the rock formations that overlay the phosphate ore. Phosphate mining releases the selenium in deadly, unnatural concentrations. Selenium is of particular environmental concern in southeast Idaho because: 1) it occurs in unusually high concentrations in the rock that is mined for phosphate; 2) it bioaccumulates in the food web, increasing in concentration in plants, animals and fish; and 3) it causes a variety of toxic effects, including teratogenicity (embryonic deformities) and death.

Selenium runoff is already poisoning aquifers, streams, and plants, killing wildlife and livestock, and threatening downstream communities in southeast Idaho. More than 500 sheep, six horses, and untold numbers of wildlife have died from grazing on selenium-laced plants or drinking selenium-poisoned water near phosphate mines. Fish in one stream, Mill Creek, are so contaminated that Idaho health experts warn that children should eat only limited amounts of the fish. In 2006, Idaho wildlife officials warned hunters against eating liver from elk killed near phosphate mines. The highest levels of selenium pollution ever recorded in water birds and eggs were found in Idaho's phosphate belt, along with massive salamander die-offs.

In 2006, Dr. Robert Van Kirk and Sheryl Hill, researchers from Idaho State University, developed a predictive model based on all available published research on effects of selenium on fish, including salmonids. Dr. Van Kirk also took all the available Yellowstone cutthroat trout population data compiled by the Idaho Department of Fish and Game for the Salt and Blackfoot Rivers in southeastern Idaho. Using both types of data, Van Kirk developed a model that predicts population level effects of selenium on YCT populations. The model predicts declines in Yellowstone cutthroat populations of 50 percent relative to carrying capacity when selenium contamination averages 13 micrograms per gram (whole body, dry weight) and 90 percent when concentrations average 16.5 micrograms per gram. A sample of 63 trout collected from streams in the Blackfoot and Salt watersheds had a range of 1.8 to 52.3 micrograms per gram, with a mean of 9.81 micrograms per gram. Trout from Sage Creek, which is contaminated by the Smoky Canyon Mine, already have selenium concentrations ranging as high as 34 micrograms per gram. In April 2007 this research, entitled Demographic Model Predicts Trout Population Response to Selenium Based on Individual-level Toxicity, was accepted for publication in the peer-reviewed journal ***Ecological Modeling***. Dr. Van Kirk's research indicates selenium contamination from phosphate mining in the Blackfoot and Salt river watersheds is high enough to cause observable declines in trout populations.

The selenium pollution that is contaminating the Salt and Blackfoot river watersheds is caused by the three operating phosphate mines and as many as 28 closed mines. The Forest Service is the lead agency charged with overseeing cleanup of eight of these Superfund sites, and the State of Idaho also has responsibility for eight sites, including the West Georgetown Mine. By threatening the sources of clean water, these Superfund sites imperil people and communities throughout the region.

Lastly, because of bioaccumulation, selenium discharges do **not** translate into environmental impacts in a 1 to 1 fashion. That is, a 1% increase in selenium does **not** result in a 1% increase in toxic effects. Rather, as A. Dennis Lemly, Ph.D., a U.S. Forest Service scientist who is an expert on selenium in aquatic environments, points out in his February 2006 comments on the DEIS for the Smoky Canyon Mine expansion, a 1% increase in selenium in the Project Area "may translate to a 1,000% percent increase in toxic impacts" because of bioaccumulation. As a result of bioaccumulation, the higher the risk from selenium, the lower the discharge must be to prevent harm to fish and wildlife.

4. Nature and history of activities that have occurred regarding the release

Beginning in 1996, livestock deaths associated with selenium uptake in the vicinity of historic phosphate mines, such as the South Maybe Canyon, Wooley Valley and Conda mines in southeast Idaho, prompted public concerns regarding potential human health and ecological effects from phosphate mines. In response to these concerns, primary mine operators in the region formed the Idaho Mining Association (IMA) Selenium Committee in 1997 to jointly investigate mine-related problems associated with past operations. In 1997, the Selenium Working Group was formed to facilitate collaboration among the participating federal, state and tribal agencies, as well as mine operators. In 2000, federal and state agencies and the Shoshone-Bannock Tribes entered into a "Memorandum of Understanding concerning Contamination from Phosphate Mining Operations in Southeastern Idaho." In 2001, many of these same parties entered into an administrative Consent Order to evaluate and address area-wide human health and ecological risks related to past mining practices. Parties to the Area-Wide AOC were EPA, USFS, IDEQ, BLM, USFWS, and mining companies, J.R. Simplot Company, Nu-West Industries, Inc., Rhodia, Inc., FMC Corporation, and P4 Production, L.L.C. In December 2002 the "Area Wide Human Health and Ecological Risk Assessment for the Selenium Project, Southeast Idaho Phosphate Mining Resource Area" (AWHHERA) was completed.

The AWHHERA, however, cannot be construed to represent a CERCLA Preliminary Assessment for any of the 19 phosphate mines in the massive study area. According to the AWHHERA, the objective of the document was "to evaluate baseline risks to human receptors using regional resources and to assess the potential for population-level risks to ecological receptors in the region."[10] The document was never intended to determine the risks posed by hazardous substance releases at the individual mines. In fact, the AWHHERA specifically states that "[s]ubsequent mine-specific investigations will be conducted under regulatory oversight to comprehensively identify and control localized sources, releases and exposures at each mine site, and to select and implement remedial activities."[11] No "subsequent mine-specific investigation," however, was ever completed at the West Georgetown Mine in the five years since the publication of the AWHERRA.

In addition, the conclusion of the AWHERRA, which states that there is a "low probability of significant human health effects in the region," is fundamentally flawed. The actual area of the 19 phosphate mines in the resource area range from less than one-tenth of one

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[10] Final Area Wide Human Health and Ecological Risk Assessment, Selenium Project, Southeast Idaho Phosphate Mining Resource Area, December 2002 at ES-3.
[11] Id.

square mile to 7.4 square miles, whereas the entire resource area examined by the AWHHERA was approximately 2,500 square miles. The AWHHERA, by encompassing such an expansive area, effectively reduced the likelihood of identifying impacts to human and wildlife populations because the results of small numbers of analytical samples were averaged over disproportionately large areas.

Idaho University researcher Sheryl Hill describes why the AWHHERA fails as a valid risk assessment for the mine sites. She assessed the adequacy of the AWHHERA in 2003, stating, in part:

> The greatest liberties taken by the authors with USEPA [risk assessment] guidance was with regard to the calculation of area wide average concentrations (AWACs) of contaminants for use as exposure point concentrations (EPCs). I could find no published guidance to indicate that calculating area-wide average concentrations of chemical using concentrations measured at site designated both "impacted" and "background" (or "unimpacted") ... is an acceptable method of determining exposure point concentrations. Although the authors might argue that averaging contaminant concentration over a given area is a means of modeling EPCs, and that USEPA guidance permits modeling, this particular approach is inappropriate for a variety of biological and statistical reasons.
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> .... [I]t is apparent that area-wide averaging tended to obscure relatively high concentrations of a contaminant. For example, Table C-2 shows that the concentration of selenium in surface water in the impacted area of the Salt River watershed was 4 µg /L, which was 80 percent of the chronic criterion for aquatic life. The concentration in the unimpacted area was 0.720 µg /L, which was less than 15 percent of the chronic criterion. Because the selenium-impacted area was only 0.2 percent of the entire area, and the selenium-unimpacted area was 0.93 percent of the entire area, the area-wide average concentration of selenium was calculated to be 0.723 µg /L.
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> It is not necessary to understand how an AWAC or EPC is used in the assessment process to understand that area-wide averaging of contaminant concentrations can seriously underestimate the risks of exposure to chemicals by susceptible organisms. Consider the circumstances that resulting in sheep mortality. The concentration of selenium in the spring from which the sheep drank was sufficient to cause acute mortality. But if this concentration had been averaged with the concentration of selenium in springs that were not contaminated with selenium, the result would probably have been less than the threshold concentration for toxicity, indicating that a risk of toxicity did not exist. Furthermore, selenium is a contaminant that accumulates in organisms and in food webs. This property of selenium is a key factor in any assessment of its ecological

> risks, but the implications of area-wide averaging of selenium concentrations on biological concentration and accumulation were not addressed.

Another extremely significant shortcoming of the AWHHERA was its failure to perform any quantitative analysis of groundwater contamination. It determined without analysis that ingestion of groundwater by humans is a *de minimis* route of exposure to contaminants. This determination was made despite the existence of conclusive evidence that shallow groundwater in the resource area is contaminated with concentrations of selenium sufficient to cause toxicity to mammals. On June 15, 2001, approximately 160 sheep died after ingesting spring water contaminated with a toxic concentration of selenium. The contaminated spring was located on "private grazing land located downhill from a reclaimed phosphate mine northeast of Soda Springs."[12] Apparently, selenium was released from sources at the mine site, whereby it percolated through the soil into groundwater and was transported away from the mine site in groundwater, to then re-emerge outside the mine site at the ground surface as spring water. Based on this scenario alone, it is not possible to regard groundwater as a *de minimis* route of human exposure to contaminants.

Given the limited data and the total absence of any site-specific discussion of the West Georgetown Mine, it is impossible to consider the AWHHERA as a Preliminary Assessment. US EPA defines a Preliminary Assessments as "an assessment of information about a site and its surrounding area."[13] EPA states that:

> A Preliminary Assessment is designed to determine whether a site poses little or no threat to human health and the environment or if it does pose a threat, whether the threat requires further investigation. PA investigations collect readily available information about a site and its surrounding area. The PA is designed to distinguish, based on limited data, between sites that pose little or no threat to human health and the environment and sites that may pose a threat and require further investigation. The PA also identifies sites requiring assessment for possible emergency response actions.[14]

No other assessment or study specific to the West Georgetown Mine followed the AWHHERA, despite the identification of significant releases from the site. No Preliminary Assessment was performed by US EPA, nor was the hazard ranking system employed to score the site. To our knowledge no significant additional sampling was completed at the West Georgetown Mine, and there exists no administrative order for further investigation or remedial action at the site.

In conclusion, Petitioner GYC respectfully requests that US EPA Region 10 complete a Preliminary Assessment at the West Georgetown Mine pursuant to section 105(d) of CERCLA. Furthermore, according to section 105(d), if the Preliminary Assessment indicates that the

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[12] Idaho State Journal, July 24, 2001.
[13] http://www.epa.gov/superfund/whatissf/sfproces/pasi.htm.
[14] Id.

release or threatened release may pose a threat to human health or the environment, the US EPA must promptly evaluate such release or threatened release in accordance with the hazard ranking system set forth at 40 CFR Part 300, Appendix A.

Thank you, in advance, for your consideration of this petition.

Submitted respectfully by,

/s/

Marv Hoyt
Greater Yellowstone Coalition
Petitioner

Lisa Evans
Earthjustice
Attorney for Petitioner

Attachment